

## CORRESPONDENCE

## NUMERICAL FORECASTS OF VERTICAL MOTION ASSOCIATED WITH THE HEAVY SNOWSTORM OF MARCH 18-19, 1956

CONRAD P. MOOK AND KENNETH S. NORQUEST

Weather Bureau Forecast Center, Washington National Airport, Washington, D. C.

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A report by us, which appeared in the March 1956 issue of the *Monthly Weather Review* [1], contains on page 119 a reference to a 1,000-mb. prognostic chart prepared by the Joint Numerical Weather Prediction Unit (JNWP) prior to the occurrence of the March 18-19 east-coast snowstorm. Our statement was intended only to call attention to the objective indications concerning the future movement of a surface Low located in Wisconsin at 1500 GMT March 17, as shown by data assembled as of that time.

Subsequent to the publication of this article our attention has been directed to another 24-hour prognostic chart routinely prepared by that Unit on an electronic computer; namely, a prediction of the vertical motion to be expected at the 800-mb. level at 1500 GMT March 18, 1956. This chart is shown in figure 1 wherein it will be seen that a center of positive (upward) vertical motion is located over Delaware. Such forecasts of vertical motion, which are implicit in any numerical system for forecasting synoptic development [2], were originally considered by-products of a system aimed at forecasting the pressure patterns. However, they may well be one of the most important contributions which can be made to the problem of forecasting precipitation by numerical means [3].

We are pleased to have this opportunity to bring to the attention of readers of the *Monthly Weather Review* this information which suggests that the vertical motion, as predicted, might have furnished a valuable clue to the subsequent storm track, in contrast to the lack of such information in the numerical prognostic 1,000-mb. chart. In addition it may have provided a valuable clue to the precipitation forecast and suggests that forecasters could obtain some valuable help from the evaluations of future vertical motion prospects thus made available rather than to attempt to apply the 1,000-mb. numerical forecasts.

The official weather forecasts released by this and other offices of the Weather Bureau for this storm are a matter of record. The first official Weather Bureau bulletin, which forecast the magnitude of the snow which occurred, was released at 1400 GMT, March 18, 1956, by this office (Washington National Airport). It reads as follows:

A disturbance that is located in West Virginia this morning will move eastward across central Virginia today and reach the Maryland coast by tonight and then move northeastward during the night. From 2 to 4 inches of snow is expected to accumulate across northern West Virginia, northwestern Virginia, and through the interior of Maryland, with lesser amounts over the remainder of northern Virginia and the Eastern Shore of Maryland. Amounts of snow ex-

pected to be greater toward the northeast with 3 to 5 inches through eastern Pennsylvania and New Jersey and possibly 4 to 6 inches on through Connecticut tonight.

## REFERENCES

1. C. P. Mook and K. S. Norquest, "The Heavy Snowstorm of March 18-19, 1956—The Climax of a Record Late-Season Snow Accumulation in Southern New England," *Monthly Weather Review*, vol. 84, No. 3, March 1956, pp. 116-125.
2. R. C. Sutcliffe, "A Contribution to the Theory of Synoptic Development," *Quarterly Journal of the Royal Meteorological Society*, vol. 73, Nos. 317-318, 1947, pp. 370-383.
3. J. Smagorinsky and G. O. Collins, "On the Numerical Prediction of Precipitation," *Monthly Weather Review*, vol. 83, No. 3, March 1955, pp. 53-68.

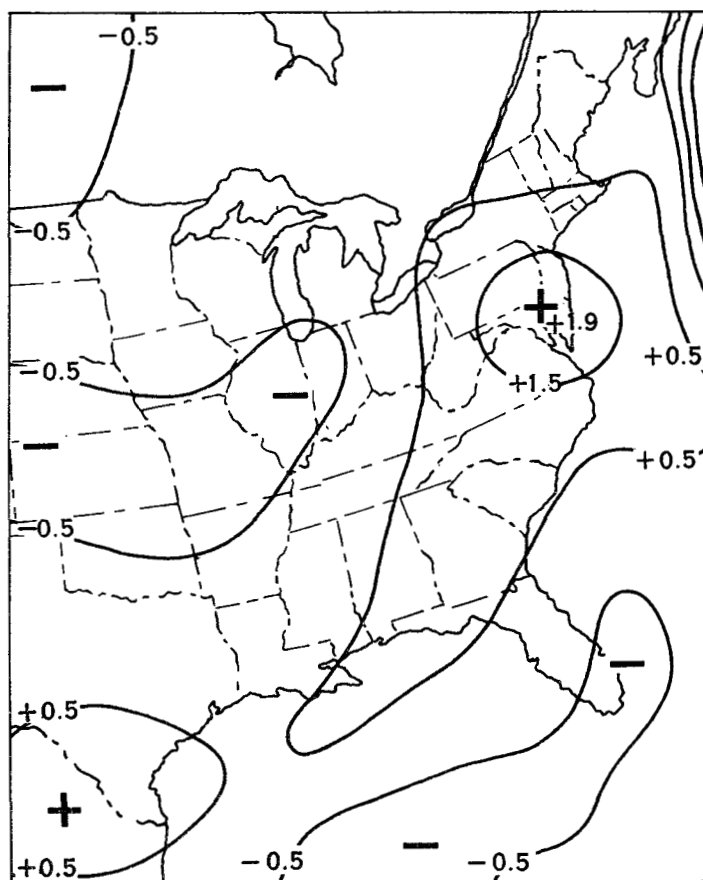


FIGURE 1.—JNWP 24-hr. prognostic vertical motion (cm. sec.<sup>-1</sup>) at 800 mb. for 1500 GMT, March 18, 1956.